

Copper Antifouling Paint Sub-Workgroup 1/13/05 Meeting Notes

In-Person Participants:

Acosta, Vic, DPR
Bacey, Nina, DPR
Brunetti, Kathy, DPR
Davy, Paul, County of San Diego, CAC
Edwards, Diane, SWRCB
Kubiak, Rachel, DPR
Monk, Steven, DPR
Singhasemanon, Nan, DPR

Phone Participants:

Brown, Paul, Port of San Diego
Dobalian, Lesley, RWQCB 9
Candelaria, Linda, RWQCB 8
Gonzalez, Jamie, UC Sea Grant Extension
George, Robert, U.S. Navy, SSC-SD
Looker, Richard, RWQCB 2
Matuk, Vivian, CCC
Michael, Pete, RWQCB 9
Moran, Kelly, TDC Environmental
Newmann, Jenny, RWQCB 4
Rivera, Ignacio, U.S. Navy, SSC-SD
Ward, Kim, SWRCB

These meeting notes contain highlights of discussion topics, items of continuing interest, and pending action items. If you would like more details, you may want to contact the individual(s) associated with that particular item. Highlighted topics are organized in a bulleted form. Pending action items are tasks that require immediate attention. These are denoted as “**Action Item**”. An attendance/contact information list that contains participants’ agency names, email addresses, and telephone numbers is separately attached.

Introductions/Agenda Review:

- Twenty individuals (8 in person and 12 by phone) participated in the fourth Copper Sub-Group meeting. Nan Singhasemanon (DPR) welcomed the participants and announced that a review he had completed on monitoring studies with potential relevance to the evaluation of copper pollution from antifouling paints was sent via emails to the workgroup four days prior to the meeting.
- Changes to the agenda: The Irgarol agenda item was moved to the end of the News and Developments portion of the meeting. Thus, the first item of discussion by the workgroup was triphenyltin. Moreover, the time allotted for the discussion of data gaps and assessment needs was increased to 30 minutes from 20 minutes. To compensate for this increase, the time allotted for the discussion of resource availability and collaborative opportunities was decreased to 10 minutes from 20 minutes.

News and Developments:

- Pete Michael (Region 9) provided some background on triphenyltin hydroxide (TPTH). TPTH has been used as an antifoulant in Japan, Finland, U.S. and other countries. DPR’s Product/Label Database showed that 3 pesticide products have been registered with DPR with TPTH as active ingredients; however, all have been inactive since 1983. Moreover, they were all fungicides and not antifouling paint products. A query of other triphenyltin containing products revealed that 11 antifouling paint products with triphenyltin fluoride as active ingredients were registered at one time for use in California. All of these registrations have been inactive since 1989.

Pete was curious if TPTH had been detected in any U.S. harbor/bay sediments or if anyone has even thought to look for it. Although its use as an antifoulant has not been allowed in the U.S. for many years now, the United States Environmental Protection Agency (U.S. EPA) recently determined that non-antifoulant uses of TPTH on all currently registered crop sites (pecans, potatoes, sugar beets) are eligible for reregistration under the conditions specified in its Reregistration Eligibility Decision (RED). Could TPTH from these uses get into runoff and receiving waters? Could this allowance of use be noteworthy considering the persistence of this compound and its effects on shellfish at very low levels? The workgroup did not have prior knowledge regarding this compound.

The TPHT RED can be accessed at the following link: <http://www.epa.gov/REDs/0099red.pdf>.

- Kelly Moran (TDC Environmental) talked about the *Copper Sources in Urban Runoff and Shoreline Activities* report that she prepared for the Clean Estuary Partnership. Here are selected findings from the report:
 - Emissions from boats have not been studied in the San Francisco Bay Area.
 - Cuprous oxide (11 manufacturers and 157 products) is the most popular active ingredient in antifouling paints followed by cuprous thiocyanate (1 manufacturer and 12 products) and copper hydroxide (1 manufacturer and 2 products).
 - Based on DPR's sales data, 1,146,625 lbs. of cuprous oxide products were sold in California in 2002. Of this amount, as much as 932,000 lbs. Of cuprous oxide could have been applied to California boats in 2002.
 - The application of AFPs to boats is not viewed as a pesticide application in terms of use reporting to DPR. For this reason, most AFP use is not accounted for in DPR's Pesticide Use Report (PUR).
 - The SF Bay Area has about 60 yacht harbors with about 15,000 berths. Approximately 10,000 to 12,000 of these berths are occupied at any given time.
 - Differences in water temperature, pH, salinity, and fouling rates determine both release rates of biocides and coating maintenance requirements confounding the usability of San Diego emission data.
 - Studies prepared for the SIYB TMDL evaluated release of dissolved copper. Total copper releases were not measured. Particulate copper will likely deposit into the underlying sediment. San Francisco Bay research has shown that fluxes from copper bound in Bay sediments contribute to dissolved copper levels in the water column.
 - Increased release rates have been measured from coatings after periods of motion. The increased copper release is attributed to the motion-induced loss of the biofilm that forms on the hull.
- Richard Looker (Region 2) reported that his region is developing site-specific water quality objectives (WQO) for copper and nickel for the San Francisco Bay. These objectives must be incorporated into the Region 2 basin plan. Changes will result in copper objectives that are higher than the current copper California Toxics Rule numbers (CTR) of 3.1 and 4.8 µg/L for chronic and acute values, respectively. Moreover, there will likely be two different sets of numeric objectives for different portions of the Bay North of the Dumbarton Bridge. The portion South of the Dumbarton Bridge already has site-specific objectives for copper and nickel.

The San Francisco Bay RWQCB, State Water Resources Control Board, Office of Administrative Law, and U.S. EPA must approve the site-specific objectives before they can be incorporated in the basin plan. Whenever a WQO is changed or a new one is adopted, the regional board must

include a plan to implement the objective. Therefore, a copper (and nickel) management strategy will be incorporated into the basin plan at the same time to serve as the implementation plan. The management strategy will establish control measures for a number of copper sources including those from copper AFPs. The management strategy that pertains to this source would likely include regional board participation of the Copper Sub-Group and education/outreach on alternative coatings.

- Jenny Newman (Region 4) reported that her region is preparing a draft TMDL and implementation plan for Marina Del Rey, which will include copper. These documents are expected to be available in June 2005. Rebecca Christmann is the lead person on the TMDL.
- Linda Candelaria (Region 8) reported that she is preparing a sampling plan to assess copper in Lower Newport Bay marinas. Sampling is expected to begin this summer (2005). Copper will be analyzed from water column (dissolved and total) and sediment samples. Channel and boatyard (two in the area) samples will also be taken.
- Lesley Dobalian (Region 9) reported that the Shelter Island Yacht Basin (SIYB) TMDL is going to the its Board for approval on Wednesday, February 9, 2005. Moreover, Region 9 will be meeting with stakeholders to discuss the TMDL and implementation plan. A major change from the last draft of the implementation plan is that the primary enforcement tool is no longer the NPDES permit. Instead, the implementation of the TMDL will be based on issuance of waste discharge requirements (WDRs), waivers of WDRs, or adoption of Waste Discharge Prohibitions. The latest version of the TMDL and implementation plan can be found at http://www.swrcb.ca.gov/rwqcb9/tmdls/tmdl_files/shelter%20island/SIYB%20TMDL%20Tech%20Rept%2010-14-04%20rev1.pdf
- Pete Michael (Region 9) provided a status update on the Harbor Monitoring Program. The overall goal is to assess water quality status and trends and establish baseline conditions in five harbors. The plan will benefit from more funding although partial funding has already been procured from the Surface Water Ambient Monitoring Program (SWAMP). Four local agencies: the Port of San Diego, City of San Diego, City of Oceanside, and County of Orange have been involved with Region 9 in the development of this program. Current participants would like to involve the U.S. Marine Corps; however, their intention to participate is not clear.

Local agencies will develop a sampling design plan and sampling could begin as early as July 2005. In the early phase of monitoring, the Southern California Coastal Water Research Project (SCCWRP) will conduct a total of six toxicity identification evaluations (TIEs) to help determine link any observed toxicity to elevated copper levels. SCCWRP is expected to begin water column sampling in July as well.

Pete expects copper from passive leaching of boats to be studied as part of the 2008 Southern California Bight Regional Marine Monitoring Study.

- Rachel Kubiak (DPR, Registration Branch) introduced the topic of Irgarol 1051 to the workgroup. Irgarol is an s-triazine herbicide used in combination with copper in AFPs as a booster biocide. U.S. EPA granted Irgarol a conditional registration for use in boat AFPs in the U.S. Irgarol does not have to go through reregistration since it is a relatively new active ingredient.

U.S. EPA conducted an environmental risk assessment (ERA) in 1998 as part of the comparative analysis for alternatives to TBT. This preliminary risk assessment showed that Irgarol can bioaccumulate and poses significant risks to aquatic plants such as seagrass and marine micro algae. U.S. EPA completed an updated ERA in July 2004 that showed Irgarol being regularly detected above “no effect” levels and even effective concentration (EC₅₀) values in coastal waters and sediments worldwide. Irgarol may also have endocrine-disrupting ability. Several countries have already taken regulatory actions to restrict the use of AFPs containing this active ingredient including the United Kingdom, Sweden, Canada, and Denmark.

The workgroup seemed relatively unaware of the risks posed by Irgarol. Developments on this topic will likely be tracked by the workgroup in the future.

Assessment Activities:

- Nan Singhasemanon announced that he has recently distributed a review document to the workgroup via email. The document is titled, “California Copper Monitoring Studies with Potential Relevance to the Evaluation of Copper Antifouling Paint Pollution”. Nan noted that he used the bibliography of copper studies, generated with the help of the workgroup, to initially identify potentially relevant monitoring studies. He also talked to workgroup members to identify reports that may have not made it into journal literature.

Nan noted that the current document is a staff draft and should be considered a work in progress. However, primary purpose of having the review available for this meeting was to help generate discussion on data gaps and monitoring needs. The review is attached to the email along with these meeting notes.

The review supported the observation that many studies have been conducted in the San Diego region. The sampled media vary from water, sediment, and bivalve tissues. Many of the sites studied are coastal and marine in nature. Only a handful of estuarine and freshwater sites have been investigated for copper in marinas and similar areas. It is important to note that the sources of the copper measured in these studies may not be exclusively from copper AFPs.

Nan noted that of the studies reviewed, those done in the San Diego Bay region examined copper in the water column, sediment, and bivalve tissues. Investigators outside of this region were rarely concerned copper concentrations in the water column of marinas or boatyards. Instead, they were more interested in determining sediment and/or bivalve tissue concentrations.

Several studies outside of San Diego have shown elevated copper levels at biological levels of concern in sediment and bivalve samples from marina, boat basin, and boatyard areas. Copper AFPs are suspected in these studies as sources of copper; however, adequate source identification has not been done in these cases. Moreover, the copper concentrations in the overlying water column have not been determined.

- Nan solicited comments from the workgroup on the monitoring review. He then asked whether the group could work together toward filling some of the data gaps that exist. Specifically, Nan wanted to know if some of the agencies represented would be interested in collaborating on a monitoring study of a statewide scale. There was no immediate response to this inquiry.

Linda Candelaria asked if more data is needed for DPR to take regulatory actions on Cu AFPs. She noted that the SIYB TMDL has already established that Cu AFPs are a significant source of

copper. Nan said that DPR is interested in generating copper data from marinas and similar sites in California so that it can better evaluate mitigation and regulatory options. Thus, DPR encouraged the formation of this workgroup so that such an assessment can be made collaboratively.

Nan said that DPR has already evaluated whether it should take local or county-specific actions. However, this option did not seem practical considering a number of factors including: the mobile nature of the source, the difficulty in enforcement, and the large amount of resources necessary to implement only on this scale. A statewide regulatory option may be more appropriate particularly if high levels of copper resulting from legal Cu AFP use can be documented to occur throughout California. If it turns out that this is a very site-specific issue, which is not what the monitoring review suggests) then deferring to TMDLs and implementation plans may be the primary mode of response considering that TMDLs are meant for addressing watershed-specific issues.

Kathy Brunetti (DPR) added that DPR's trigger towards responding to the presence of pesticides in water is quite different than that of the regional boards. Instead of using water quality objectives (as dictated by the California Water Code) as triggers for regulatory action, DPR's trigger is based on the Director's finding that the use of a registered pesticide is "likely to cause a significant adverse impact" (as dictated by the California Food and Agricultural Code [CFAC]). For cancellation and suspension, a "serious uncontrollable adverse effect" on the environment has to be demonstrated (CFAC 12825).

Nan added that DPR, State and Regional Boards have worked to bridge these differences in response policies. In 2004, DPR finalized a formal water quality response policy under which, the exceedance of a water quality objective will trigger an evaluation by DPR. Prior to the creation of this policy, DPR was not obligated to assess the evaluate response options. In fact, DPR's interest in the formation of the Copper Sub-Group is a direct result of the implementation of this policy.

Kelly Moran suggested that perhaps workgroup members did not want to commit their agencies to new projects due to differences in priorities and resource constraints. Moreover, Kelly suggests that if additional data are needed, DPR should rely on the formal reevaluation process to direct Cu AFP registrants to gather the necessary data. Nan responded by recognizing that reevaluation was certainly a viable option. However, since there was some interest, particularly by the Regional Boards in assessing contributions of Cu from antifouling uses, Nan felt that a joint study seemed logical. DPR has set aside staff and budget resources to contribute to such an endeavor. However, based on the lack of interest from the workgroup as a whole, any monitoring study may have to be done independently from the workgroup.

Pete Michael suggested that the workgroup might want to consider a monitoring study much like the San Diego Regional Harbor Monitoring Program. Instead of starting from scratch, a protocol and quality assurance plan already exist. The program would have to be stretched across a larger study area. Pete also suggested that it might help if Nan put down some of his ideas on monitoring, so that the workgroup can brainstorm off of. Nan replied that he was hoping to do some brainstorming based on the monitoring review document, but perhaps the group would benefit more if it can see specific recommendations.

Nan also questioned whether the workgroup has done as much as it could (considering its limited resources and varying agency priorities) to achieve its objectives. Based on the four listed objectives and the possibility that DPR, Regional Boards, and other member agencies could still

(jointly or independently) collect copper data outside the purview of the workgroup, Nan felt that the workgroup has done much of what it set out to do. The workgroup produced a bibliography of aquatic copper studies and a review of relevant California copper monitoring studies. The information sharing and update aspects of the workgroup have been very useful to those participating. It has established a link to U.S. EPA's reregistration process on cuprous oxide. It may have also identified opportunities for collaborative studies even if potential projects may not be conducted collectively by the workgroup.

Nan suggested that he needed to consult DPR's management as well as the Marina and Recreational Boating Workgroup's chair Diane Edwards on how to proceed with regards to the workgroup.

- **Action Item:** Nan will consult with DPR management and Diane Edwards, on the future and direction of the workgroup.

Other Items/Next Meeting/Adjourn:

- **Action Item:** Nan will send out an email to members and interested parties regarding the status of the workgroup.

The next Copper Sub-Group meeting is TBA.

Meeting Notes Prepared by: Nan Singhasemanon DPR.